

calculations of their resultant thrust and centre of pressure. But such an investigation is necessarily based on hydrodynamical assumptions, and laboratory experiments are required before any practical use can be made of the conclusions. It must be remembered, on the other hand, that questions of stability or instability of particular types of machine can never be decided by flights in which the human element has a guiding influence. There is still work to be done with models. On the practical side the committee will have abundant experimental work in connection with propellers, for the motion of a screw in fluid presents complications which render any attempt at hydrodynamical treatment practically hopeless.

It is scarcely surprising that the cry "too much theory; fears that talk may injure work" finds its way into the papers, and that some members of the Aëro Club put in a plea for the "practical man." The fact seems, however, to be overlooked that the appointment of this committee forms only part of a general scheme, the practical side being provided by the War Office and the Admiralty, both of which departments have dirigibles in course of construction. A Parliamentary committee embracing politicians of all parties is also announced.

It would be more correct, however, to describe the present position of aëronautics in England as "too much theorising and too little theory." Many papers have found their way into aëronautical and other periodicals, some of them full of algebraic symbols and formulæ, but an investigation is not necessarily mathematical because it contains equations, and the author is not necessarily a mathematician because he employs them. Indeed, in many cases it is the "practical man" who revels in the excessive use and abuse of formulæ, and the mathematician and physicist who would like to bring themselves into touch with practical problems are consequently deterred from reading such literature. Moreover, there is a want of suitable journals for the publication of mathematical and physical investigations bearing on aëronautics. They would be rather out of place in physical journals which deal more with such subjects as electricity and radio-activity; while any writer bold enough to try the journals just mentioned would probably find himself involved in a controversial correspondence, and would learn that too much talk *did* injure work, especially as no good would probably come of his attempts to enlighten his correspondents.

The need is thus becoming imminent for a clear division of labour between the practical man and the physicist, and if such a division should do no more than make the practical man confine his attention more exclusively to experimental work, much would be gained, and his researches would be made more accessible and useful. A division of a similar kind has now, we are glad to learn, been arrived at between the three leading societies devoted to aëronautics, namely, the Aëronautical Society, the Aëro Club, and the Aërial League. The Aëronautical Society mainly exists for the purpose of promoting discussions on aëronautical matters, and these consequently fall within its province. The Aëro Club undertakes the development of aëronautics from the point of view of sport. It desires to encourage men of means and leisure to practise aviation and ballooning for the pleasure they derive, and with the incentive of competing for prizes. Finally, the Aërial League is to be the paramount body in influencing public opinion in the development of the subject from the point of view of national defence. An agreement to this effect has been drawn up and signed by the presidents of the several societies.

England's neglect of science has lost the chemical

and optical industries, and in the automobile industry France had a long start of us. It certainly does appear evident that in regard to aëronautics at least a serious attempt is being made to recover lost ground in the field of international competition.

G. H. BRYAN.

DR. GERALD F. YEO, F.R.S.

THROUGH the death of Dr. Gerald F. Yeo, Emeritus professor of King's College, London, physiology has lost within a few weeks yet another of those men who, within the last thirty years, materially assisted in the creation of a British school of this science, which, though of late development compared with Continental schools, has grown with a rapidity and vigour equalled only by the advances made on the bacteriological side of pathology. In the foundation of the Physiological Society, which at first included hardly a score of members, Yeo took an active part, being its honorary secretary for fifteen years from 1874 to 1890.

Born in 1845, he was one of the sons of Henry Yeo, J.P., of Howth, received his education at the Dungannon School, then entered Trinity College, Dublin, and obtained his medical degrees in 1867. After some months of study in the hospitals of Paris, Berlin, and Vienna, he returned to Dublin, where he practised as a surgeon and taught anatomy until 1874. In this year he was elected assistant surgeon of King's College Hospital, and professor of physiology in King's College, the histological part of the work being undertaken by Groves. During this time, until his resignation in 1890, Gerald Yeo, by his lectures, his research work, and, in particular, by his strenuous advocacy of the necessity of the experimental method in physiology, as the chief of those methods by which material advances in this science could alone be made, occupied a prominent and influential position. In 1885 he published a "Manual of Physiology," a book primarily addressed to students, which gave a concise account of the elements of this science. In the Arris and Gale lectures delivered at the Royal College of Surgeons in 1882 on "The relation of experimental physiology to practical medicine," Yeo has probably given all the essential arguments which have so repeatedly been urged by those who claim that the sure basis of physiological knowledge must rest upon experimental work. An excellent account of the systems of medicine not dependent upon physiology compared with the modern methods of rational treatment which depend upon physiological and pathological knowledge, together with a most accurate account of the growth of physiology, is to be found in these lectures. Among other points, Yeo emphasised the paramount influence of Haller, who, not only by his experimental work, but by a comprehensive survey of what was then known of physiology, may be said to have created this science, a science conceived in the days of Galen, quickened in the time of Harvey, but born only in the eighteenth century.

Gerald Yeo was elected a Fellow of the Royal Society in 1890. His original work covered a somewhat restricted field. In 1850 Helmholtz had measured the delayed time, or latent period, which precedes the actual contraction of muscle by the method of Pouillet. Instead of 0.01" for frog's muscle, Yeo, in papers published by himself, and with Cash and Herroun, succeeded, with the pendulum myograph, in halving this value, which in its turn was finally found to be too long by Burdon-Sanderson, who, working with unweighted or slightly weighted muscles, obtained 0.04" as the shortest time of delay,

which is not appreciably slower than the latent period of the current of action. Other papers published with Ferrier in 1881, on the functional association of motor fibres in the anterior roots of the brachial and sacral plexuses of the monkey, and in 1884, on cerebral localisation in the Philosophical Transactions, formed early and important contributions to those investigations on the functions of the central nervous system which have since been so extensively carried out by English physiologists. One of Yeo's researches, that on the gaseous metabolism of cardiac muscle, was of particular interest. He determined, by spectroscopic examination of the living heart and its fluid contents, the rate at which resting and active muscle utilised the oxygen of oxy-hæmoglobin.

At the time of the resignation of his professorship Yeo practically severed his connection with physiology, and his interest in this was largely replaced by the occupations of a country life. He was therefore but little known to younger men, who may not remember that much of the organised attack on the experimental methods of physiologists and pathologists was directed against work carried out by Yeo and others in his laboratory. Apart from his actual scientific work, he will be remembered by all who have the best interests of medicine at heart for his uncompromising attitude towards those who, either from ignorance or mistaken views of the ethics of the subject, strove to hinder, if not actually to prevent, physiological research in this country.

G. A. B.

DR. BINDON BLOOD STONEY, F.R.S.

WITHIN a few weeks of his eighty-first year,

Dr. Bindon Blood Stoney, F.R.S., died at Dublin on May 5. Dr. Stoney was born at Oakley Park, Birr, in 1828, and educated at Trinity College, Dublin, where he had a distinguished engineering course, graduating in 1850. His abilities were early perceived by the then Earl of Rosse, whom he assisted in the astronomical researches of the early 'fifties of last century. In 1852 he went to Spain, and was engaged on railway work in that country. On his return home he was engaged in the important work of the Boyne Viaduct, which was regarded as a remarkable engineering achievement at that time. It is, however, by reason of his work as engineer to the Dublin Port and Docks Board that Dr. Stoney will be most remembered. He was appointed assistant engineer to the board in 1856, and three years later chief engineer to the port, a position which he held until 1898. During his tenure of office, Dublin was converted from a purely tidal port into one in which some of the largest vessels may be moored alongside the quays and lie constantly afloat, and the river so deepened that the cross-channel steamers may enter and leave at all states of the tide. In this work Dr. Stoney used the method of laying down the harbour walls by means of large blocks of masonry, weighing as much as 350 tons, and sunk by means of shears on a prepared foundation, the quay walls of the Alexandra Basin, the North Quay extension, and other work being laid in this manner.

During the period of his association with the Port and Docks Board, Dr. Stoney was also engineer for the construction of the O'Connell Bridge and the building of the Butt Bridge, and the reconstruction of the Grattan Bridge over the River Liffey. Dr. Stoney was a Master of Arts and Master of Engineering of the Dublin University, and in 1881 the honorary degree of Doctor of Laws was conferred on him in recognition of his eminent position in the world of engineering. He was the author of "The Theory of

Stresses and Strains," a standard book in its day, and of various papers in the transactions of scientific and engineering societies. He was president of the Institution of Civil Engineers of Ireland in 1871, and for many years a most active member of that body. He was elected a Fellow of the Royal Society in 1881, and in 1874 was awarded the Telford medal and premium of the Institution of Civil Engineers; he was also the recipient of many other honours. In addition to being a great engineer, Dr. Stoney was a man of wide and varied reading, and his judgment in letters and in art was of the soundest. His sterling worth and the value of his services to the City of Dublin will be long remembered.

NOTES.

THE secretary of the Royal Society made the following announcement at the meeting of the society on May 6:—Sir David Bruce, who is in charge of the Sleeping Sickness Commission at present in Uganda, cabled to the society on April 3 that the commission had confirmed Kleine's observations on the period during which the tsetse-fly was capable of transmitting a trypanosome infection. A letter was received on April 30 from Sir David Bruce, dated Mpumu Chagwe, Uganda, April 3, confirming the telegram, and stating that the commission had "repeated Dr. Kleine's experiments with *Trypanosoma gambiense* and *Glossina palpalis*, also with a trypanosome of the dimorphon type and the same tsetse-flies, and found the flies infective after sixteen, nineteen, and twenty-two days."

It is well known that Lord Walsingham has long been an unwearied collector and student of the smaller moths, and that his collection of the Micro-lepidoptera is the best in the world, as he has not only added to it largely by his own efforts, having collected assiduously during his travels in various parts of Europe and North Africa, California, Jamaica, &c., but has taken the opportunity to purchase the most celebrated foreign collections, among others those formed by Zeller, Frey, Christoph, and Hofmann, as they successively came into the market. He has also contributed numerous papers on the subject to the Transactions of the Entomological Society, the *Entomologist's Monthly Magazine*, &c., and has also published several independent works, especially on the Tortrices and Pterophoridae of North America. In 1891 this valuable collection was formally made over to the British Museum by deed of gift, Lord Walsingham arranging to retain it in his own hands as long as he desired to do so; but we now understand that it is his intention to transfer the collection to the care of the trustees of the British Museum (an office which he himself shares with others) in the course of next year.

DR. R. P. VERNEAU has been appointed to the professorship of anthropology in the Paris Museum of Natural History in succession to the late Prof. Hamy.

THE fifth Congrès préhistorique de France will be held at Beauvais on July 26-31. The general secretary of the congress is Dr. Baudouin, 21 rue Linné, Paris.

THE *Times* announces the death of Dr. John Thomson, of Brisbane, at the age of sixty-one. Dr. Thomson was a graduate of the University of Edinburgh, and settled in Brisbane more than thirty-three years ago, where he became recognised as an authority upon matters relating to sanitary science. He served as president of the Royal Society of Queensland, and was president of the Inter-colonial Medical Congress in 1899.